

Study Guides on Computer Networks and Distributed Systems

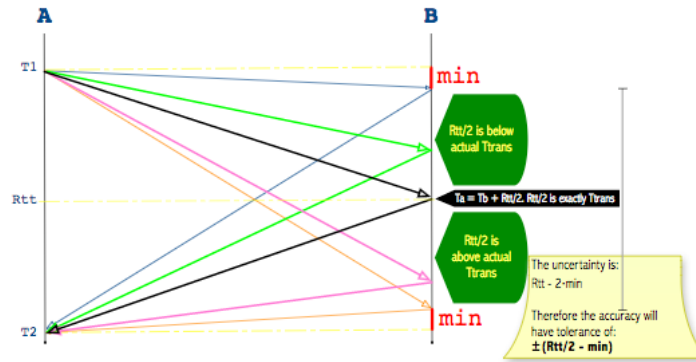
Clock synchronization and NTP

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Questionnaire

1. The Network Time Protocol (NTP) can be used to synchronize computer clocks. Explain why, even with this service, no bound is given for the time difference between two clocks even after synchronization.
2. What transport does NTP use?
3. When synchronizing computer clocks, can a clock be set back? Explain what has to be done in order for a clock to acquire the same real time as another clock.
4. Solve the synchronization example included in the lecture slides
5. Does TCP offer some facility to allow a transmitter to compute the real Rtt of a connection, *i.e.*, the Rtt that doesn't include the IRQ time consumed by the destination host servicing the request received from the client.
6. Describe the kind of operations caused by the reception of a layer-2 frame. Specifically we wish to obtain a perspective about what happens right after the microprocessor deals with the hardware interrupt which initially reports the full deserialization of a new frame. (Recall our brief board discussion in the relevant Lecture of 27/Nov/2017).
7. Explain the basic principles underlying the Cristian's synchronization algorithm
8. Clock synchronization over the internet suffers from a lack of precision, can you explain the cause?
9. Tell several ways to have a host synchronized with a UTC source over the Internet
10. What is *clock drift*? What is its basic cause?

11. Give an explanation of the following diagram:



12. Study the solved exercise about Clock Synchro in paloalto.unileon.es/ds

13. Solve exercises 14.1 – 14.5 from Dollimore/Kindberg/Coulouris/etc (You can access the problem statements on the last page of the Physical Clocks ppt lecture presentation)